

3 1761 11632139 9

Statist
Canada

CALL NO.
CA1
BS 280
-79C13

GOVT

Structural
Division Analysis

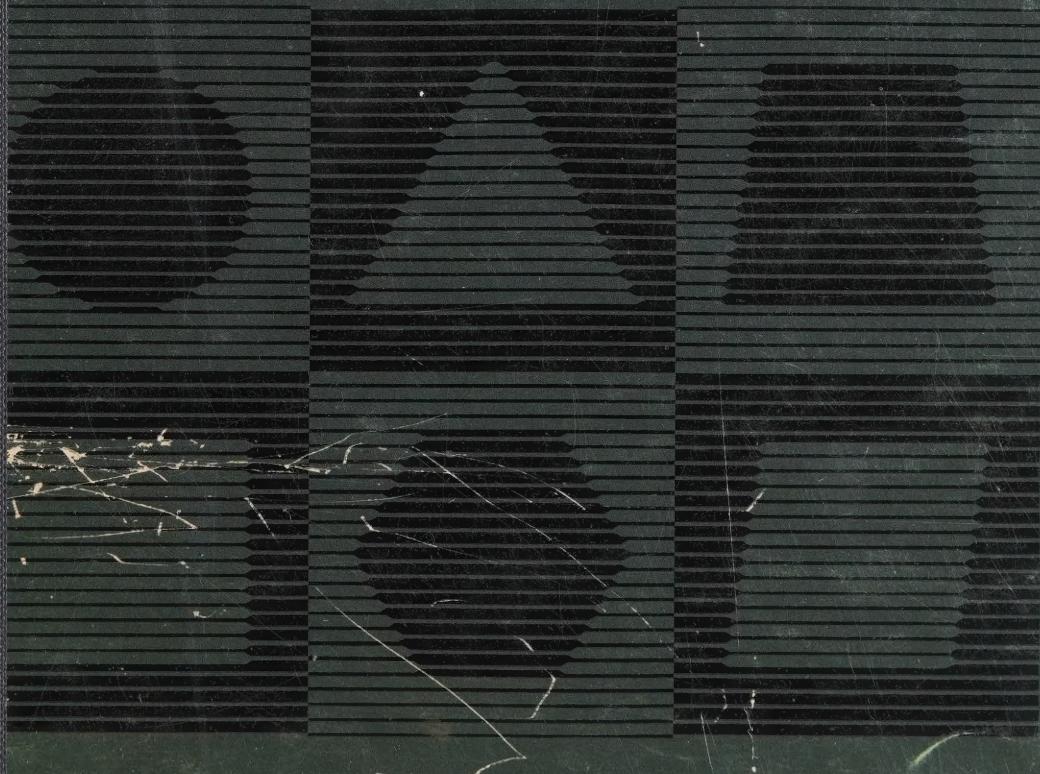
Division de l'Analyse
Structurelle

710
INTERNATIONAL SEMINAR
ON BUILDING REGIONAL AND MULTIREGIONAL
INPUT-OUTPUT TABLES

Gif sur Yvette, FRANCE

November 13-16, 1979

FRANCE







Statistics
Canada

Statistique
Canada

CAI
BS 280
79C13

**Structural Analysis
Division**

**Division de l'Analyse
Structurelle**

1970 INTERNATIONAL SEMINAR

ON BUILDING REGIONAL AND MULTIREGIONAL

INPUT-OUTPUT TABLES

Gif sur Yvette, FRANCE

November 13-16, 1979

(3)

GRAB





Governme.
Publication

CAI
BS 280
79C13

710 INTERNATIONAL SEMINAR (3)

ON BUILDING REGIONAL AND MULTIREGIONAL

INPUT-OUTPUT TABLES

Gif sur Yvette, FRANCE

November 13-16, 1979



245. Title: Canadian Inter-regional Input-Output Tables
Sources and Methodology

By: Craig Gaston

110
Organization: Structural Analysis Division
Statistics Canada

TABLE OF CONTENTS

I INSTITUTIONAL BACKGROUND

II ACCOUNTING FRAMEWORK

III SOURCES

IV METHODOLOGY

A FLOW TABLES

B TRADE FLOWS

I. INSTITUTIONAL BACKGROUND

Statistics Canada is a national statistical office with a mandate for collecting, and disseminating a wide range of social and economic statistics and for compiling macro economic statistics. Within this mandate the bureau has a well developed program in the field of input-output. This program includes both the compilation of input-output tables and the development of input-output models.

Input-Output tables at the national level for Canada are compiled annually in both current and constant dollars. The time series of these input-output tables now covers the period 1961 to 1976 inclusive. New tables are prepared with about a three year time lag from the reference year.

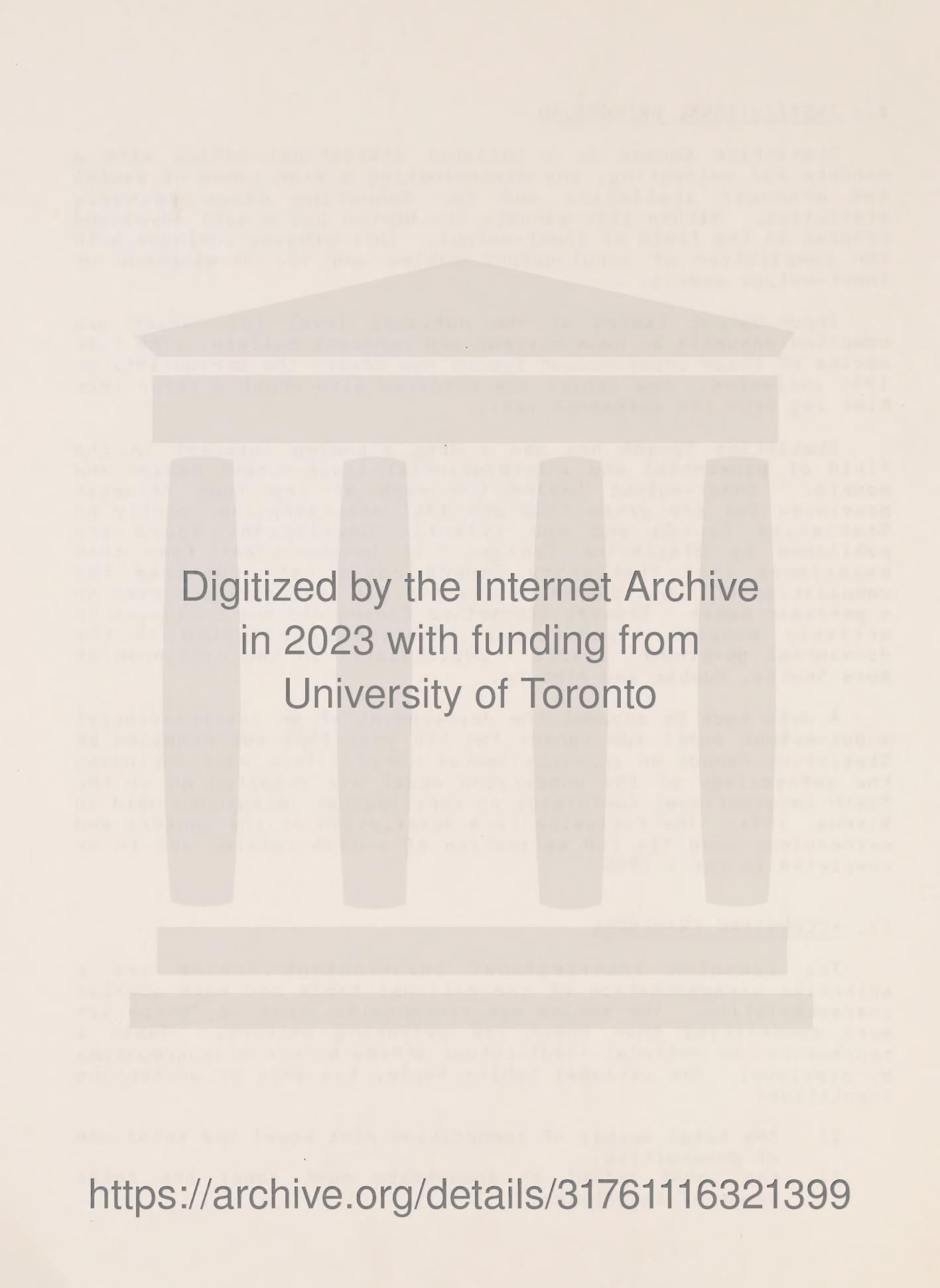
Statistics Canada has had a long standing interest in the field of provincial and interprovincial input-output tables and models. Input-output tables for each of the four Atlantic provinces for the years 1960 and 1965 were compiled jointly by Statistics Canada and the Atlantic Development Board and published by Statistics Canada. It became clear from that experience that Statistics Canada could not undertake the compilation of input-output tables for all ten provinces even on a periodic basis. However Statistics Canada did and continues to actively support input-output programmes initiated at the provincial government level; - particularly in the provinces of Nova Scotia, Quebec and Alberta.

A data base to support the development of an interprovincial input-output model for Canada for the year 1966 was compiled by Statistics Canada on an experimental basis. This work including the methodology of the underlying model was reported on at the Sixth International Conference on Input-Output Techniques held in Vienna, 1974. The following is a description of the sources and methodology used for the estimation of a 1974 version due to be completed in early 1980.

II. ACCOUNTING FRAMEWORK

The Canadian interregional input-output tables are a selective disaggregation of the national table and have similar characteristics. The tables are rectangular, that is, there are more commodities than there are producing sectors. Table 1 represents the national input-output schema before disaggregation by province. The national tables employ two sets of accounting identities:

- 1) the total supply of commodities must equal the total use of commodities
- 2) the total output of industries must equal the total input of industries.



Digitized by the Internet Archive
in 2023 with funding from
University of Toronto

<https://archive.org/details/31761116321399>

Table 2 shows the national input-output tables after they have been disaggregated by province. Potentially, each sector can be given a provincial dimension although in practice it may be convenient to leave industries such as finance, and communications as national sectors. Table 3 shows a typical industry reorganized with all the provinces collected into one matrix. Obviously the sum of the provinces inputs or outputs must equal the corresponding Canada totals for the industry in question. This identity is used rather than 1) above to perform a commodity balance at the provincial level. To be sure, this is a weaker methodology, but the absence of strong import and export data by provinces dictates this approach.

Table 4 shows an interprovincial trade matrix for a typical commodity. Since it would be an impossible task to distinguish the sector specific trade flows of a commodity we assume that each user has the same supply pattern. Therefore, the trade matrix is a summary of the geographical origin and destination for all users of the commodity. A row of the trade matrix shows the shipments of each province to all other provinces and foreign exports. A column is the purchases of a province from all other provinces and foreign imports. The total production is derived from the provincial output matrices summarized by commodity and the total use is the total of the inputs and final demand for the commodity summed over all sectors.

Classifications

The interregional input-output tables have three dimensions: industry or sector, commodity, and province. (The term region is synonymous with province in this paper). We distinguish 191 intermediate industries of which about 120 are manufacturing. The input-output commodity classification contains 602 commodities of which about 10 are primary incomes (wages and salaries, taxes, profits). The ten Canadian provinces are distinguished separately in the table with the Yukon, Northwest Territories combined into one region.

From an inter-provincial point of view the input-output commodity classification is not particularly appropriate since it is important to separate commodities which have different inter-provincial trade movements. As an example, we have one category for fresh vegetables including potatoes which has a much different trade pattern than the rest of that category.

Much of the work of constructing the tables involves concording diverse classifications. As an illustration here is a list of survey sources with separate commodity classes:

1)	MANUFACTURING	ICC
2)	IMPORTS	MCC
3)	EXPORTS	XCC
4)	RETAIL TRADE	RTCC, KOB
5)	RAIL TRANSPORT	RCC
6)	TRUCK TRANSPORT	TCC
7)	MARINE TRANSPORT	MCC
8)	FAMILY EXPEND. SURVEY	
9)	FEDERAL GOVERNMENT	OBJECT CODE
10)	PROVINCIAL GOVERNMENT	OBJECT CODE
11)	MUNICIPAL GOVERNMENT	FUNCTION

In addition some provincial tables exist with separate classifications such as the province of Quebec. Concordances between these classifications and the input-output codes are not always simply due to splits and changes from one year to the next. Any attempt to harmonize these classifications will have beneficial effects in terms of the quality of the tables.

III DATA SOURCES

Although Statistics Canada has no comprehensive provincial statistics program, most surveys that provide information for the national input-output table are also a useful source of provincial data. Of course there are cases such as the investment survey where sampling error tends to reduce the reliability of data when one requires both an industrial and provincial disaggregation. But in general the survey coverage is as good provincially as nationally. The weakest area, and Canada is probably no exception in this regard) is inter-provincial and external trade. There are no customs stops at provincial border crossings and consequently there is no accurate measure of inter-provincial trade; nor is there information on inter-national imports by province of destination or inter-national exports by province of origin. In other words there is insufficient data to perform a proper accounting balance at the provincial level. Before going on to describe the methodology used to estimate the missing data, a brief account of the data sources is in order.

Manufacturing

The most important source of information is the annual census of manufacturers which obtains inputs and outputs for over 30,000 Canadian establishments. Since 1971 the detailed commodity information has been stored in machine readable form and is accessible on-line internally to Statistics Canada . Despite the richness of this source of data there are problems still to be resolved. Most of these problems are related to the proper

identification and classification of the commodities and especially of inputs. Another problem which is particularly serious for smaller regions is due to the practice of sending abbreviated questionnaires (short forms) to smaller manufacturing establishments. The incidence of short forms is not necessarily even for each province and as a result the commodity definition of technologies tends to be blurred where this phenomenon exists. Fortunately steps are being taken to overcome these limitations by designing personalized questionnaires. This would eliminate short forms and also help to better define commodity detail since only questions pertinent to an establishment would be asked. This innovation will reduce the burden on individual respondents and open the way to obtaining more information. Until such time as the new approach is operational however, a significant amount of data must be estimated. The methodology that we have adopted for the 1974 tables is to select the smallest establishments in each industry group and average their inputs as a proxy for the missing short form data.

One major factor in the production of a multi-provincial input-output table for Canada is the availability of a annual national table. Although the work of constructing provincial and national tables has not been completely co-ordinated yet we have taken advantage of much of the work that has gone into the building of the latter. The Input-Output division of Statistics Canada has developed a concordance between the most detailed commodity classification used to identify the manufacturing questionnaire items (the ICC: Industry-commodity classification) and the input-output commodity nomenclature (the LINK) (see section on classifications). Since both the data and the classification concordance are in machine readable form it is a simple matter to produce the initial tabulations of manufacturing inputs and outputs at the provincial level.

Destination of Shipments

Before discussing other sources of information it is perhaps useful to mention here the other aspect of the manufacturing census which is the underpinning of the entire inter-provincial model. I am referring to destination of manufacturing shipments survey which is done intermittantly (1967, 1974, 1979...). This is a supplementary section on the form which asks each respondent to indicate the province of first destination and exports of his shipments. This information, as imperfect as it may be, is the main determinant of the base year of the inter-regional data base. In section IV I shall describe how this information is refined to become the main component of the commodity trade flows. Its main weakness from the point of view of inter-regional input-output are that it lacks a commodity dimension and that it reflects first destination only. The first drawback is not too serious since in many cases a manufacturing establishment produces only one commodity at the level of the input-output nomenclature but there are cases where joint products and by-products produced by an establishment have

different trade patterns. Initially, we assume that all commodities produced by an establishment have the same trade pattern. The second weakness is inevitable since a respondent will often not know the ultimate destination of his shipments which may pass through wholesalers and other intermediaries. Unfortunately, the merchandising survey does not complement the manufacturing census in this area such that it is impossible to make a direct estimate of final destination. An attempt has been made to reconcile the destination of shipments survey (D.O.S.) with the external trade exports (see Statistics Canada Catalogue 31522, 1974). This was done by attempting to put the latter on an industry basis - perhaps more hazardous than putting the D.O.S. on a commodity basis. In any event the results were not terribly encouraging. Apart from the "first destination" problem other explanations for the discrepancies include the problem that province of lading of exports is not always the province of production.

Primary Industries

The annual census of agriculture provides information on farm production and inputs. This survey yields good provincial data and is perhaps the sector where the inputs are best defined. Forestry, fishing are relatively good for production information but inputs must be largely estimated. Similarly, mining is weak on the input side but it is possible to determine the production of ores and concentrates and to trace them to the smelting and refining phase. There are, however, special problems associated with the minerals sector inasmuch as it is difficult to obtain accurate prices due to the integrated nature of the companies in this sector. These companies report metals by value at the mine level and show the smelting as custom work - i.e., a purchased service. This treatment nets out the refining and smelting step and consequently the large inter-provincial movements of ores and concentrates. By working with the data at the company level it is possible however to reconstrict these flows.

Other Intermediate Sectors

Of the remaining intermediate activity it is generally feasible to get provincial production figures (except for sectors of a national character like transportation) but inputs are usually very weak. Fortunately, however, the wage component of inputs in the service sector is relatively large and this information is for the most part available by province.

Construction

This sector is treated as an activity in the Canadian input-output framework and thereby includes "own account" construction in other sectors. It is particularly difficult to get representative input structures for construction. The problem is aggravated by the nature of the industry where a significant proportion of the work is handled through

sub-contracts making it difficult to identify materials and labour inputs. Much emphasis is placed on the commodity accounting balance at the Canada level to fill out the inputs to this sector. At the provincial level the lack of solid inter-provincial trade data make this approach less attractive. An attempt was made to use Quebec technology vectors based upon a survey of contractors in that province. Assuming similar technology in the rest of the country, the resulting inputs at the Canada level did not match very favourably those in the national table. The results are inconclusive and much more work is required in this area.

Transportation

This sector has a twofold importance in the provincial table since it provides information on interprovincial trade. Annual surveys of trucking, shipping and rail transport provide data on origin and destination, in tons, of numerous commodities as well as revenues and expenses by broad category. While the origin and destination data is not useful for all commodities it can be relied upon in cases where goods are homogenous enough for unit prices per ton to be meaningful. Problems in this area are differing commodity classifications and gaps due to "own account" transportation - that is, movement of goods other than by commercial carriers. Rail data presents special problems due to inter-line movements which tend to cause double counting of commodities since they may be counted by both rail carriers.

Methodologically, transportation as a sector presents a problem in that it is difficult to allocate expenses to provinces. For local companies one might assign inputs to province of ownership but for larger interprovincial carriers, and especially the railroads, this approach is incorrect. Various alternatives are available however such as allocating expenses according to provincial wages and salaries of transportation carriers which are generally about 30% of total costs. It is not strictly necessary to provincialize the transportation sector from a modelling point of view as long as some algorithm is developed to allocate expenses as a function of the movement of a particular commodity. However, since our methodology of estimating trade matrices depends upon knowing the use of goods by province and since the transportation sector is a user of goods also, some formula must be used to allocate expenses.

Merchandising and Consumer Expenditures

"Statistics on Merchandising, Service businesses are presented under two concepts, "Location" and "Establishment". Location statistics show every separate place of business in its own kind of business classification (KOB) while establishment statistics comprise the accounting entity, which measures the sales activities in one or more business locations, not necessarily all in the same industrial sector (i.e. retail trade,

manufacturing, etc.) or kind of business. A retail establishment is classified in total to the kind of business which comprises its major activity. The data reported by establishments having more than one trading location may therefore include business activities in more than one kind of business, possibly in more than one province and other economic activities as well...".¹

Prior to 1971, the differences in the survey results based on the two concepts were reconciled by the decennial census (taken in 1961 with a mini census in 1966). However problems with the 1971 merchandising census further compounded by under coverage of the monthly location based retail trade survey have weakened this area of statistics considerably, especially at the provincial level.

The merchandising surveys are important not only as a source of trade margin information on commodities, but also as a measure of purchases in the consumer sector. Not all sales of retail establishments go to final demand however since a number of small service and repair businesses buy supplies from retail stores. But by and large the retail sales data provide the best available information on activity in the consumer sector which accounts for almost 30% of the domestic use of goods. Additional data can be obtained from the irregular family expenditure survey (...1967, 1969, 1974) which is based upon a sample of households. This survey, although interesting from the point of view of matching expenditure patterns to income levels, is not designed to provide a global estimate of commodity use. The 1974 survey did not focus on provinces as such, but rather on cities. Although most provinces were well represented since the largest cities in each were chosen, the urban bias is problematical. Rural-urban ratios are available from the earlier 1969 survey by a similar commodity grouping but it is doubtful whether the data could yield much more information. One phenomenon which tends to support the hypothesis that provincial expenditure patterns are similar on a value basis is that where certain commodities are abundant such as fish in the maritime provinces, the per capita quantities consumed are somewhat higher but the price is lower thereby tending to dampen any sharp differences. Given the scarcity of solid provincial data in this sector it is necessary to use national commodity expenditure patterns as an initial estimate. Provincial allocation factors for some 40 categories of expenditure were provided by the provincial economic accounts. This latter data was largely based upon the 1974 retail commodity survey as concerns the commodity composition of each "Kind of Business" and upon the monthly retail trade survey for the sales levels.

Investment

Investment is separated into new construction and machinery and equipment. Construction, described above, appears in the intermediate table as an activity, and in the final demand table by sector. The latter is expressed only in terms of structure

¹ Retail Commodity Survey STATISTICS CANADA 63-526,1974.

type (i.e. residential, non-residential, engineering) but the commodity inputs can be derived by weighting the activity vectors by the appropriate structure levels. The investment survey is done annually and has a provincial dimension although sampling variation tends to make province by sector information less reliable. Commodity detail is non-existent in this area and it is necessary to borrow national patterns which have been derived mainly on the basis of the commodity balance. Since investment goods are used mainly by one sector it is relatively simple to account for their supply and use. Provincially, it is more difficult to resolve the imbalances in the area since a significant proportion of Canada's investment goods are imported.

Energy Sector

Abundant information exists for this sector not only in terms of production by province but also concerning inter-provincial movements of energy commodities. Annual surveys of all electric power producers yield good information both in values and quantities. Energy use is also well documented since all manufacturing establishments are asked annually to report their energy use in some detail. The biggest gap in this area is in the use of motor gasoline. It is very difficult to distinguish between commercial and personal use of this commodity even at the Canada level.

Government Expenditure

This sector is not as rich in detail as it should be, however much information does exist. Government capital expenditure data is available by structure type. The commodity composition of this is not estimated for government alone since construction technologies are distinguished by structure for all uses. In other words, it is assumed that any non-residential construction has the same materials and labour composition regardless of purchasing sector.

Current expenditure data is available in varying degrees for all levels of public administration. At the Federal level the Department of Supply and Services has expenditure data by object code and province of purchase. This data can be supplemented by the Public Accounts. Provincially, much information on current expenditures comes directly from the provincial governments.

Local government information is becoming more readily available as some of the larger cities are able to provide information by function from their computer files.

Fortunately this area does not present any serious problems since more than half of government current expenditures goes to wages and salaries and an important part of the remainder is purchases of services. In addition, there is no reason to believe that there is any significant difference in the purchasing patterns from one province to another.

IV METHODOLOGY

A) Flow Tables

Nationally, the estimation of Canadian input-output tables involves two distinct steps. First, the industry balance whereby all available input and output for a sector is assembled and reconciled. Where possible, separate control totals for materials, labour and overhead are derived and missing commodity detail is imputed on the basis of previous estimates. At this stage adjustments are made on the output side to bring shipments to a production basis and on the input side to measure use rather than purchases, where necessary. Second, the commodity balance where the accounting identity equates the production plus imports on one hand to the use plus exports (adjusted to producers prices) on the other hand. This phase allows the detection of coding errors, valuation problems and missing detail.

It is the commodity balance which is impossible as such at the provincial level due to the lack of imports and exports sub-nationally. For this reason it is necessary to use the national input-output tables as a constraint for the provincial totals. The first step remains identical - in fact it will be preferable in the future to perform the initial industry balance at the provincial level and then aggregate to obtain the national preliminary estimates since there are pro-ration operations at this stage which are improved by working with less aggregate data. This is particularly true for the exercise of identifying uncoded inputs for which the composition could vary considerably between regions. Once all available provincial detail has been assembled for a sector it is possible to adjust the provincial observations to national column for that sector. It is not sufficient to simply prorate since there are usually some rows which have been imputed nationally for which no direct observations exist provincially. These can be assigned to provinces using national proportions and to the extent that the sum of the observed data for a province falls short of the provincial control total.

If all the above operations have been performed carefully there should no longer be any significant gap between the sum of the provincial data and the control totals. At this stage a simple RAS adjustment can be done to force consistency.

The above methodology does not vary significantly for sectors with less provincial data available. Essentially, the use of national proportions is combined with any provincial observations. At the limit only the control totals have a provincial aspect with the technology being entirely national. Fortunately, for sectors where little commodity detail exists it is often possible to obtain at least the wage and salary component which is usually quite important thereby introducing significant provincial variation.

B) Trade Flows

In the previous description of data sources I mentioned two major sources of interprovincial trade data: the manufacturing destination of shipments data and transportation way-bill data. The information alone however, is apt to be incomplete for the reasons stated in the previous section. Nevertheless, by carefully assembling and refining the production and use tables a fairly accurate picture of the provincial supply and use of each commodity can be assured. This vast array of data, when summarized by province, provides the framework within which the partial flow data can be reconciled. To be sure, these constraints will vary in quality since some commodities will be used primarily in sectors for which data is largely estimated. On the other hand, even where it has been necessary to use national technologies the sectors are most often so detailed (191 intermediate industries and 130 final demand sectors) that much provincial variation is embodied in the tables.

It is important to mention at this point that supply and use data are incompatible to the extent that the latter are valued at purchaser's price which includes transportation, trade and tax margin. The last two items can be handled relatively easily since the tax margin is mainly Federal sales tax which is the same rate for each province and the trade margins tend to be fairly homogeneous. Transportation margins on the other hand are roughly a function of the shipping distance which cannot be determined until the trade matrix is estimated. So, we cannot estimate the trade flows without compatible production and use constraints yet these cannot be determined without first knowing the trade flows of the commodity - an unsolvable problem except for the fact that the commodities for which the transportation margin is the greatest (relative to the total value of the commodity) are those which tend to be shipped in bulk and are well defined in the transportation statistics. Therefore, for all practical purposes, commodities can be separated into those with low transportation margin rates and those with high rates. The former can be assumed to have a national transportation pattern without serious distortion and the latter can be measured in physical quantities - physical units can be obtained for commodities destined for domestic manufacturing or export which explains most of the use of commodities of this type. This distinction is convenient from another point of view also: it is very useful to measure the physical movement of goods in an inter-provincial input-output model.

Foreign Imports

For most commodities we now have production and use constraints in compatible prices and an initial trade pattern showing province of origin and destination as well as foreign exports. To complete the supply identity we require an estimate of foreign imports by province of destination. This unfortunately is not available. The nearest we can come is

'province of clearance. Some work has been done in Statistics Canada to match the import number on customs documents to the income tax payroll deduction number in order to determine the province of residence of the importer. Careful examination of the results show that in many cases the importer is not the ultimate user however. The importer tends to be a wholesaler or a head office buying in bulk quantities for many branches across the country. As discouraging as this may seem, again, all is not lost - it is necessary to examine each commodity on an individual basis in the light of all available information. Firstly, much of Canada's imports tend to be highly manufactured investment goods which, except for agricultural machinery, tend to go to the most industrialized provinces - Ontario and Quebec. Secondly, the linear east-west nature of the country helps to make province of clearance a clue to the province of destination - particularly for bulk commodities which are costly to transport. In any case, the picture is now complete with production, shipments, exports, imports and use estimates all assembled.

Foreign Exports

For foreign exports we have additional information since they are reported in the manufacturing destination of shipments survey as well as from the foreign trade statistics collected from customs documents. Again work has been done in Statistics Canada to reconcile these two sources but never at a commodity level and within the constraints of provincial supply and use. The external trade data is by province of lading which tends to be the province where the last mode of transport change occurs prior to export. This is often not the province of origin. Nevertheless, this additional information is useful in reconciling the trade matrices.

Transportation data by mode is complementary to the manufacturing destination of shipments (DOS) data although in some cases there is an overlap. Generally speaking the tonnages reported by the carriers for manufactured goods are not very useful since these commodities are too heterogeneous for unit prices to be meaningful. Where possible however the transportation data is compared to the D.O.S. flows. This is particularly advantageous where it is possible to obtain use data in physical quantities.

Short Form Shipments

One important adjustment to the D.O.S. data before forcing it to add to the supply and use constraints is the imputation of the short form shipments. As mentioned in section III, many establishments were selected in each industry group to impute input and output mixes for manufacturing establishments which were sent abbreviated questionnaires. By assuming that small firms do not ship their products out of province - the data supports this hypothesis - we can simply add the value of short form shipments, by imputed commodity, to the province in which

the establishment resides.

There are many other possible adjustments if one only had the time and resources but generally speaking the most important area for improving the quality of the data is in the final destination of foreign imports. Apart from the data that Statistics Canada collects it is possible to gather some information of this nature from trade associations and government regulatory agencies. We have been developing these sources as much as possible and there is some interest since we can offer in return the services of our inter-regional input-output model.

The final step in the estimation is to force the trade data to agree with the constraints. This is necessarily a very subjective operation and ideally it should be done interactively with experts in various areas. In this regard we hope to prevail upon the appropriate people in the provincial statistical agencies as well as others who may have a qualitative idea of inter-provincial movements of commodities even if they have no "hard" data. For some commodities where little data is available and transportation costs are significant we may have recourse to some optimization technique although this should not be necessary for the most part.

Services

The discussion on trade flows to this point has focussed upon goods. Services are much more difficult to handle except for the broad distinction between local and national. Head office services could in principal be resolved by ascertaining the relationship between establishments and their corresponding head office and then apportioning the latter's expense in proportion to the shipments of the former. This relationship need not be saved at the industry level if one assumes a similarity of expense pattern between head office in different sectors. By making this simplifying assumption a single head office sector would suffice for each province. Its output would be purchased by the various establishments in different provinces.

Another important area is tourist related services since some of the smaller provinces rely very heavily on tourism. A number of surveys have been done in this area although considerable work is necessary to be able to obtain a consistent picture of the inter-provincial and inter-national aspects of this sector.

Transportation services will be handled separately, at least for the bulk commodities, as a function of the trade of specific commodities. This information is derived from the individual trade matrices as described earlier. As concerns the model, we have yet to decide upon an algorithm for assigning expenses to provinces based upon a shipment between two points.

In summary, the trade information relies upon fragmentary data from many sources. Much improvement is necessary in this area, however, the resulting data will at least be consistent with the best possible estimates of production and used data by province.

TABLE 1 (a)

NATIONAL INPUT-OUTPUT TABLE

SOURCE

INDUSTRIES

COMMODITIES

PRODUCTION
OF COMMODITIES
BY INDUSTRY

INTERNATIONAL TRADES

TOTAL SUPPLY OF COMMODITIES

TOTAL OUTPUT OF INDUSTRIES

TABLE 1-b

NATIONAL INPUT-OUTPUT TABLE

	<u>DISPOSITION</u>	DOMESTIC FINAL DEMANDS		
COMMODITIES	INDUSTRIES	USE OF COMMODITIES AS DOMESTIC FINAL DEMANDS	INTERNATIONAL EXPORTS	TOTAL USE OF COMMODITIES
	INTERMEDIATE USE OF COMMODITIES BY INDUSTRIES			
PRIMARY INPUTS	PRIMARY INPUTS USED BY INDUSTRIES	PRIMARY INPUTS OF FINAL DEMANDS		
			TOTAL INPUT OF INDUSTRIES	

TABLE 2-a

PROVINCIAL DISAGGREGATED NATIONAL INPUT-OUTPUT TABLES

PROVINCE 1		SOURCE	PROVINCE 2	PROVINCE 11	
INDUSTRIES		INDUSTRIES	INDUSTRIES	INDUSTRIES	
COMMODITIES	PRODUCTION OF COMMODITIES BY INDUSTRIES IN PROVINCE 1	PRODUCTION OF COMMODITIES BY INDUSTRIES IN PROVINCE 2	PRODUCTION OF COMMODITIES BY INDUSTRIES IN PROVINCE 11	SUBTOTAL - PRODUCTION OF COMMODITIES IN PROVINCE 11	TOTAL SUPPLY OF COMMODITIES
SUBTOTAL - PRODUCTION OF COMMODITIES IN PROVINCE 1	SUBTOTAL - PRODUCTION OF COMMODITIES IN PROVINCE 2	SUBTOTAL - PRODUCTION OF COMMODITIES IN PROVINCE 11			TOTAL OUTPUT OF INDUSTRIES IN PROVINCE 11
					TOTAL OUTPUT OF INDUSTRIES IN PROVINCE 2
					TOTAL OUTPUT OF INDUSTRIES IN PROVINCE 1

TABLE 2-b

PROVINCIAL DISAGGREGATED NATIONAL INPUT-OUTPUT TABLES

TABLE 3 TYPICAL INDUSTRY PROVINCIALIZED

COMMODITIES

NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	BC	Y & NWT	INPUT OR OUTPUT VECTOR FROM NATIONAL TABLE

PROVINCIAL CONTROL TOTALS

Raw provincial data is forced to sum to Canada totals by commodity and provincial control totals. For Inputs, values include Imports.

TABLE 4

INTERPROVINCIAL TRADE MATRIX



